

STATEMENT OF SUBSTANCE OF INTERVIEW
U. S. Application No. 09/732,705

REMARKS

I. An Examiner's Interview Summary Record (PTO-413) dated March 28, 2003 was received by the Applicant's representative, with respect to the interview conducted between the Examiner and Applicant's representative on March 27, 2003.

During the interview, arguments analogous to those presented in the Response under 37 C.F.R. § 1.111 filed March 21, 2003, were discussed. This discussion included the rejections of claims 1, 8, 11, 13, and 15. At the conclusion of the interview, the Examiner agreed to further consider the arguments upon filing of the Response.

II. An Examiner's Interview Summary Record (PTO-413) dated November 12, 2003 was received by the Applicant's representative, with respect to the interview conducted between the Examiner and Applicant's representative on November 6, 2003.

During the interview, arguments analogous to those presented in the Response under 37 C.F.R. § 1.111 filed November 18, 2003, were discussed. This discussion included the rejections of claims 1, 11, and 15. At the conclusion of the interview, the Examiner agreed to further consider the arguments upon filing of the Response.

It is believed that no petition or fee is required. However, if the USPTO deems otherwise, Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,



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WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: November 18, 2003

RESPONSE UNDER 37 C.F.R. § 1.111
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REMARKS

Claims 1-17 are all the claims pending in the application.

Based on the Response filed March 21, 2003, and the Examiner interview conducted March 27, 2003, the rejection of claims 1, 8, 11, 13, and 15 over Noro et al. has been removed, and claims 8-10 have been allowed. The rejection of claim 1 over previously-cited Hayase has been maintained. The current status of the claims is the following.

Claims 5-10 are allowed.

Claims 2-4, 12-14, 16, and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 1 is rejected under 35 U.S.C. § 102(b) as being anticipated by Hayase (US 5,191,619). Claims 11 and 15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hayase in view of newly-cited Daniels (US 5,418,860).

Applicant respectfully traverses the claim rejections with the following comments.

In the rejection of claim 1 over Hayase, the Examiner has repeated the previous rejection. Also, in the Response to Arguments, the Examiner asserts that the “passive radiator of Hayase acts according with the movement of the loudspeaker by the fact that both are positioned in the same enclosure, wherein movement of one component affects the other, thus the detector of the passive radiator detects motion characteristic signals of the loudspeaker.” The Examiner’s assertion appears to be an elaboration upon the Examiner’s belief that the detecting means inherently detects motion characteristics from the speaker as well as the radiator. See page 2 of Office Action. In response to the Examiner’s assertion, Applicant respectfully submits that

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claim 1 is allowable for the reasons presented in the Response filed March 21, 2003, as well as for the following reasons.

Even if the Examiner is correct that the movement of the speaker affects the passive radiator, Hayase still fails to teach or suggest an amplitude detecting means for detecting an amplitude value of a diaphragm of the speaker to produce an amplitude signal corresponding to the amplitude value. In other words, the passive radiator of Hayase being affected by the movement of the speaker is not the same as detecting an amplitude value of a diaphragm of the speaker.

In the system of Hayase, the resonance system is constructed of a passive radiator and the compliance of a cabinet. As the Examiner says, it is described in column 3, lines 56-68, of Hayase that this resonance system (hereinafter referred to as "driver") is driven. However, Applicant submits that claim 1 is not anticipated by Hayase for the following reasons.

Hayase discloses the configuration for detecting the vibration of the passive radiator, but only discloses the positive feedback of the vibration of the passive radiator to an amplifier. Namely, Hayase is entirely silent on the means and method for generating the signal corresponding to the amplitude characteristic of the driver.

As described in the previous Response, the amplitude characteristic of the passive radiator is different from that of the driver. The equivalent circuit in the passive radiator system is attached herewith again (Additional Appendix). As seen from the equivalent circuit, the driver and passive radiator affect each other. However, it is apparent that the vibration characteristics such as the resonance frequency are determined by their individual parameters. Therefore, the amplitude characteristic of the driver cannot be detected by only detecting the vibration

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characteristic of the passive radiator. As described in column 4, line 47 -column 5, line 5, Hayase intends to increase of the vibrations of only the passive radiator. The operation of vibrating the driver is not anticipated from the operation of Hayase.

Therefore, claim 1 is not anticipated by Hayase.

For the rejection of claims 11 and 15, Applicant submits that the prior art fails to teach or suggest all of the limitations of the claims. In particular, Hayase does not teach or suggest producing a detection signal based on an operational characteristic of a diaphragm of a speaker. Instead, Hayase discloses generating a detecting current according to vibrations of the passive radiator 3. See col. 4, lines 2-4.

Furthermore, Hayase does not inherently disclose this feature of the claims. Even if the passive radiator 3 is affected by the speaker 2, such a generalized relationship does not teach or suggest producing a detection signal based on an operational characteristic of a diaphragm of a speaker. Moreover, the characteristics of the passive radiator 3 and the speaker 2 differ in such a way that makes it counterintuitive to expect the passive radiator 3 and the speaker 2 to be related in the manner suggested by the Examiner. In this regard, Applicant points to col. 4, line 47 - col. 5, line 5, which indicates that each of the passive radiator 3 and the speaker 2 vibrate in such a way as to minimize the effect on the other.

With further regard to claim 15, Applicant submits that Hayase does not teach or suggest detecting the operational characteristic of the speaker diaphragm based on a voltage applied to the speaker and a current flowing through the speaker. In fact, the Examiner has not even asserted that the applied references disclose this feature of the claim.

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Furthermore, Applicant submits that Daniels fails to make up for the deficiencies of Hayase.

With further regard to Daniel, the detected signal of Daniel is not fed back to the input side of the amplifier. The detected signal is only used for gain control of the amplifier, but not used for "motion feedback."

Additionally, Daniel does not disclose nor suggest the step of acquiring the amplitude characteristic based on the voltage applied to the driver and current flowing therethrough, and hence does not suggest the feature of claim 15. Incidentally, the integrator disclosed in Daniel is the means for rectifying a high frequency signal, and is different from the integrating operation disclosed in claim 15, i.e., integrating the detection signal to generate the amplitude signal.

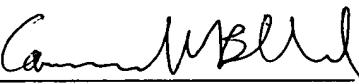
Therefore, claims 11 and 15 are allowable over the prior art, for at least the above-noted reasons.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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ADDITIONAL

APPENDIX : EQUIVALENT CIRCUIT OF PASSIVE RADIATOR AND ITS OPERATION

VOLTAGE F : DRIVING FORCE

CURRENT I : VIBRATING SPEED

R_{drive} : EQUIVALENT MECHANICAL RESISTANCE OF DRIVER VIBRATING SYSTEM

L_{drive} : EQUIVALENT MASS OF DRIVER VIBRATING SYSTEM

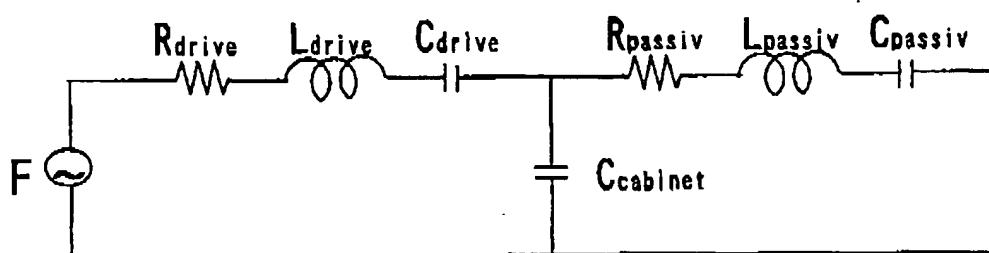
C_{drive} : EQUIVALENT COMPLIANCE OF DRIVER VIBRATING SYSTEM

R_{passiv} : EQUIVALENT MECHANICAL RESISTANCE OF PASSIVE RADIATOR VIBRATING SYSTEM

L_{passiv} : EQUIVALENT MASS OF PASSIVE RADIATOR VIBRATING SYSTEM

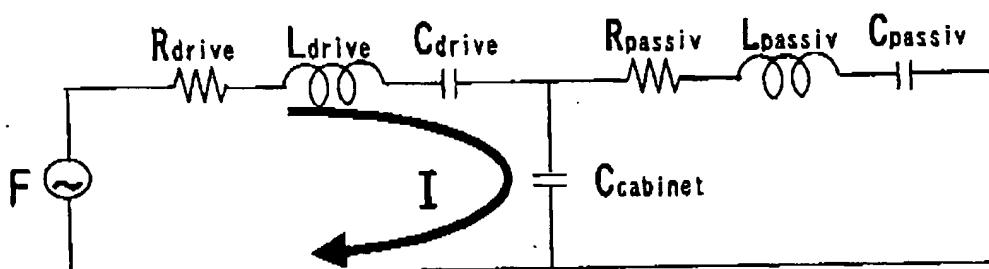
C_{passiv} : EQUIVALENT COMPLIANCE OF PASSIVE RADIATOR VIBRATING SYSTEM

$C_{cabinet}$: EQUIVALENT COMPLIANCE OF CABINET



AT FREQUENCY HIGHER THAN PASSIVE RADIATOR RESONANCE FREQUENCY :

ONLY DRIVER VIBRATES



AT PASSIVE RADIATOR RESONANCE FREQUENCY : CABINET COMPLIANCE AND PASSIVE RADIATOR PRODUCE PARALLEL RESONANCE AND AMPLITUDE OF PASSIVE RADIATOR BECOMES MAXIMUM Owing TO PARALLEL RESONANCE, IMPEDANCE BETWEEN (A) AND (B) IN EQUIVALENT CIRCUIT INCREASES AND DRIVER AMPLITUDE DECREASES. RESONANCE FREQUENCY OF PASSIVE RADIATOR IS DETERMINED BY PARAMETERS OF PASSIVE RADIATOR AND CABINET, BUT IS INDEPENDENT OF PARAMETER OF DRIVER.

